
Introduction to Archaeology. *Robin Place.* Philosophical Library, Inc. New York, 1968. xii+168 p. $6.00.

This compact, relatively high-priced work deals with the science of prehistory, or archaeology, the reconstruction of former societies from their surviving traces. Chapters are devoted to the question of why we study the past, the means by which archaeological sites are located and excavated, and how the recovered material is dated and analyzed so that we can describe the ancient lifeways involved. Another large section of the book presents a brief overview of British prehistory and lists archaeological sites in Britain that can be visited. Sketches and plates illustrate some of the material noted in the text; appendices include a description of the special techniques used to date archaeological remains and a lengthy bibliography arranged by subject and author.

My basic objection to *Introduction to Archaeology* is that it is not directed towards a specific audience in terms of prospective readers' knowledge. The intention of the author is to present an *introduction*, but the choice of illustrative material and the way that material is organized presupposes either an exceedingly well-read audience or one with previous experience in the study of archaeology. Finds are often mentioned without adequately explaining their geographic location or their import beyond the point immediately at hand. The lack of maps aggravates the former problem, though I suppose a reader familiar with British geography would fare better than I did.

This brings up another point. Why publish this book in the United States? It was written by a British prehistorian from the point of view of understanding British prehistory and for a British audience. Only rarely is New World data introduced and none of the more than 170 references in the bibliography deals specifically with New World material. Does the average American reader know that "corn" in Europe refers to wheat and other grains, not to maize, which is a New World crop? Or does he want to read lengthy descriptions of British archaeological sites when there are many good works available dealing with those closer at home?

There are some specific objections. For example, jade axes were often functional in the New World, not for display (p. 18). Also, I would argue that recent studies in North America have demonstrated the possibility of reconstructing not only the function of various prehistoric structures but also the composition of the social group(s) inhabiting them (p. 14).

On the other hand, it must be admitted that an introductory text on any subject is exceedingly difficult to write. In terms of an introduction to British prehistory, the present book is a reasonably good attempt.

EDWIN S. HALL

BOOK REVIEWS

Beginner's Guide to Electronics. *Terence L. Squires.* Philosophical Library, Inc., New York. 1967. vii+194 p. $6.00.

The small-sized book was written by a Britisher for Britishers and for those contemplating a career in electronics. As stated by the author, "It assumes no prior technical knowledge on the part of the reader." The twelve chapters consider seven topics: fundamentals of electricity, basic electronic components, basic electronic circuitry, test instruments, major applications of electronics, future of electronics, and concludes with a brief discussion of electronic training programs available in the British Isles. There is a good index.

The first four topics, which concern such fundamentals as atomic theory, current, voltage, capacitance, inductance, resistance, Ohm's Law, batteries, resistors, a.c. and d.c. current, and wave forms, among others, fill 108 pages; consequently, many of the items discussed receive only superficial treatment. A novice to the field—for whom the book was written—would find it difficult to comprehend much of the technical material presented later in connection with applications of electronics, e.g. mode of operation of television and radar.

Many diagrams are included, most of which are quite helpful in presenting and/or clarifying ideas and information. The author makes a sincere attempt to use non-technical language and usually—but not always—defines the technical terms used.

The second half of the book concerns applications and careers in electronics. More specifically, it very briefly introduces the following subjects and their associated electronic technologies: radar, medical electronics, electronics in space, television, and electronics in industry. The final two chapters very briefly discuss the future of electronics and available and suggested British coursework necessary for various vocations in electronics in that country. The included information would be of little interest to a prospective student in electronics in this country.

Most of the writing is lucid and presented in an organized and interesting manner. However, it is, as entitled, a *beginner's* guide to electronics. A number of quality similar guides are available in this country which contain a significantly greater depth of basic technical information for at least one half the cost.

GARETH E. GILBERT

Letters on Wave Mechanics: Schrödinger, Planck, Einstein, Lorentz. *K. Przibram,* editor. Translated and with an introduction by Martin J. Klein. Philosophical Library, New York, 1967. xv+75 p. $6.00.

Mrs. Annemarie Schrödinger, widow of the distinguished theoretical physicist, Erwin Schrödinger, in 1962 offered some letters of her husband's to the Austrian Academy of Sciences for publication. This volume is the result. It contains not only Schrödinger's letters, but the ensuing correspondence, when available, between Schrödinger, Max Planck, H. A. Lorentz, and Albert Einstein. Most of it dates from 1926–1928, just after Schrödinger's publications on the new wave mechanics. Recorded here are the reactions of this galaxy of minds.

Lorentz was already 72, but he reacted as a very young (and very wise) man might have, for he questioned what he saw as some of Schrödinger's weaker points, e.g., dispersion of wave packets and regarding radiation as a beat frequency phenomenon the same points which troubled Schrödinger as he tried to push his proposals further. Planck greeted the new wave mechanics joyously. Einstein's reaction was different from the others. Either he had misread Schrödinger, or had not correctly remembered what he had read. As a result, he set forth a "correct" equation, which, to Schrödinger's delight, was exactly what he (Schrödinger) had first published. Schrödinger regarded the incident as additional and unexpected confirmation for his proposals. The year following, Schrodinger's publications saw their absorption by the Copenhagen School of quantum mechanics, under the leadership of Bohr and Heisenberg. Schrödinger was unhappy with the adoption, and his later correspondence with Einstein, also reproduced here, shows some of his feelings on that score.

Through all of the letters, in addition to the scientific matters, there flows a warmth of mutual regard and affection. Klein's translations are impeccable, and his introduction splendid. A study of the history of wave mechanics perforce begins with the original papers, but this brief volume of letters is a valuable supplement to them.

J. Z. FULLMER

Readings in Ecology. *Edward J. Kormondy* (editor). Prentice Hall, Inc., Englewood Cliffs, New Jersey, 1965. xv+219 p. $4.50 paper.

This publication consists of abridgements of 60 substantive papers concerning basic ecological concepts and principles and is organized under the following headings: (1) Early Natural History, (2) The Physical and Chemical Environment, (3) The Study of Populations, (4) The Study of Communities, and (5) The Concept of the Ecosystem. Specifically compiled as a textbook supplement, it is especially useful in clarifying major thrusts in ecology, as well as their chro-

nology and interrelationships. Further, it introduces the reader to the style, thoughts, and personality of many outstanding ecologists. With possibly two exceptions, this reviewer is of the opinion that most American ecologists would concur in the inclusion of the papers selected; however, some would be critical of the paucity of abridgements concerned with historical factors, biogeography, genecology, and systems analysis.

Dr. Kormondy has done an admirable job of abridgement, which has resulted in the "capture" of the salient features of the selected papers; this certainly was a most difficult task, especially for some of the papers. He includes a short preface to each of the group headings, as well as to each abridgement. These introductions convey the tone, content, and importance of each abridged paper and groups of papers, as well as how they relate one to another.

All institutions teaching basic ecology most certainly should have a number of copies of this publication included in their library systems, and all students majoring in ecology should have a personal copy from which to gain the excitement and history of ecological research.

GARETH E. GILBERT

On the Interpretation of Phenomena of Phyllotaxis. *A. H. Church.* Hafner Publishing Co., New York, (Facsimile of Edition of 1920), 1968. 74 p. $3.50.

One of the major directions of inquiry into problems of plant development is currently with morphogenetic aspects of the shoot apex, as, in a great many plants, morphogenesis continues at the apex for the entire life of the plant. In 1913, Schoute proposed an explanation of the phyllotactic spacing problem by hypothesizing that each primordium inhibits the development of other primordia near it, presumably by action of a diffusible substance. This idea has been extended by Wardlaw, who proposed that the apical meristem itself, as well as each leaf primordium, is surrounded by a physiological field that inhibits the development of new primordia. Church contends that the idea may be conveniently summed up as the "Equipotential Theory of Phyllotaxis." This represents an attack on the problem from the standpoint of origin and indicates in one word the essential geometry of the constructions, while suggesting a physiological mechanism for the production of patterns. Unlike modern works, Church's discourse gives mathematical indications of expectation of primordial positions which could be of considerable value, should certain qualitative methods of leaf determination require substantiation. In addition, according to Church, the essential theory behind phyllotaxis not only deals with causes of leaf origin, but also with the meaning of what is implied by a "leaf"—extension of a plant-soma, its phylogeny and secondary adaptation.

If the precise mathematical form is not taken too literally in the style, for example, of classical morphology, this small but important work, long out of print and unobtainable, is a basic work for anyone approaching these problems from the standpoint of research and is most certainly to be recommended to libraries. Although it is a difficult text to follow, mostly because of idiosyncrasies in the style of the author, the book itself is an extremely well-done facsimile of the 1920 edition and the line drawings are nicely reproduced.

JEANNE WILLIS

Thalassiophyta and the Subaerial Transmigration. *A. H. Church.* Hafner Publishing Co., New York, (Facsimile of the 1919 edition), 1968. 95 p. $4.00.

This small but classic volume is concerned in overview with the morphological and physiological problems of plant transition from a marine environment. However, the thoroughness with which the author treats his subject causes the text to include some very provocative, if not always entirely definitive treatments of such still-timely topics as alternation of generations, the reducing-factor influence of a fresh-water habitat on newly transmigrated marine forms, proposal of transition *in situ*, polyphyletic origin of the archegonium, a rather exhaustive treatment of the algae of transmigration, and the survivors up through Pteridophyta.

A number of conclusions, or general principles, set forth by the author definitely show the stamp of his era. It is certain that such statements as that which follows are sure to give present-day practicing biologists much intellectual discomfort:

"Every new equipment factor can only be attained as a matter of life-and-death necessity to the organism and the race of which it forms a part; i.e. in every postulated stage of advance a life-and-death necessity requires to be demonstrated."

Although Church concludes later that "teleological interpretations carry their own condemnation," he is often guilty of attributing purposive development to plant evolution.

Church's evocative views on the phylogeny of plants make excellent ancillary reading for morphologically oriented studies and, being classic for his period, should not be overlooked in an historical development leading up to the morphogenetic studies of today. In addition, this small volume is well worth consideration by a new generation of biologists in that it would be interesting to see application of modern qualitative and quantitative methods of ecology, for example, to some of the theories proposed by Church.

This facsimile copy, like that of Church's 1920 classic of phyllotaxy, is nicely done by Hafner.

JEANNE WILLIS

Vascular Plants of Ohio—a Manual for Use in Field and Laboratory *Clara G. Weishaupt.* Wm. C. Brown Book Company, Dubuque, Iowa, (paperback), 1968. iii+280 p. $7.50.

As the subtitle suggests, this volume is well suited for local flora courses and ready identification. Being the only book covering all of Ohio's vascular flora, it naturally holds a monopoly in Ohio. Still, it is far better than a mere last resort.

The text consists of dichotomous keys to family, genus, and species. Families and genera are briefly described; the key characters themselves describe the species. Infra-specific taxa are generally ignored. Nomenclature, for the most part, follows Fernald. The only synonymy given applies to those names which the author has changed from the first edition. A welcome addition is the indication of which species are naturalized or adventive.

The majority of the keys have not been changed from those of the earlier edition. They are still as practicable as before - quickly and easily worked. Hints are provided in some cases, for example in the Labiatae, on how best to use them. Among the knottier groups, *Aster*, *Salix*, and *Solidago*, new keys have been constructed which greatly assist identification. The *Desmodium* and *Viola* keys are less successful.

The printing is a tremendous improvement over the previous edition. Typographical errors are few. However, the stamen characters of *Collinsonia* appear to have been switched in the key. Also included are keys to woody plants in summer and winter condition and a lucid glossary.

This manual will prove indispensible to any student of the Ohio flora.

ALLISON W. CUSICK

Arbustum Americanum: The American Grove by *Humphry Marshall* (Facsimile of the edition of 1785) and **Catalogue Alphabetique des Arbes et Arbrisseaux,** traduit de l'Anglois par *M. Lézermes* (Facsimile of the edition of 1788). Introduction by Joseph Ewan, Tulane University. Hafner Publishing Company, New York and London, 1967. xii+xx+174 + xxiii+278+(3) p. $20.00.

It is appropriate that the first volume of the new Hafner reprint series, *Classica Botanica Americana*, edited by Joseph Ewan, be the first book written by an American and published in the United States treating the trees and shrubs of the country. Not only is the rare 1785 Philadelphia edition reproduced in facsimile, but so also is a less well known French translation. Marshall, a nurseryman and a plant collector like his cousin, John Bartram, hoped by this work to sell seeds and living plants to European gardeners, as his advertisement at the end of the volume indicates. The work is an alphabetical list of genera, with descriptions and the Linnaean classification of each, and a listing of the American species of these genera, with their common names and information about their characteristics, distributions, habitats, and uses. The French translation duplicates this material, but also gives French common names and, in footnotes, information about the aspects of some species or related ones in European gardens.

This work will be of particular interest to plant taxonomists, who will find in it descriptions of species that have never been described. Those who enjoy reading historical or gardening literature will find satisfying information in this well produced volume, with its glossary of terms and chatty species discussions, as well as an informative new introduction by Professor Ewan.

E. D. RUDOLPH

Plant Communities. A Textbook of Plant Synecology. *Rexford Daubenmire.* Harper and Row, New York, N. Y., 1968, xi+300 p. $9.75.

It is a pleasure to welcome this worthy companion to the author's well-known textbook of autecology. The work is divided into five parts: the nature of plant communities, analysis and description of plant communities, plant succession, vegetation and ecosystem classification, and vegetation as an object of study. A little over half of the text is concerned with plant succession, it being divided into sections treating the theory of, as well as the methods for studying, succession. The first two parts of the book have much the same approach for the plant community. The 18-page fourth part and the 10-page fifth part are little more than provocative outlines of the topics. There is a 478-item bibliography.

The writing is clear, concise, and provided with generally well-reproduced illustrations. The examples used to illustrate principles are for the most part from North America, and generally from western United States. The approach is mainly descriptive, with almost no information about mathematical theory or model building. There is no glossary, because the author states, "Wherever in this book a special term seemed necessary I have chosen one that seems meaningful, then either defined it or used it in a defining sense where it first appears." In view of this statement, I found the index to be somewhat inadequate.

This book is a fine summary of the descriptive aspects of synecology. It should be useful as an introduction for students and for others who desire to know about plant communities. It should provide stimulus for looking more closely at vegetation and thinking about it. In this way, it may lead the student into some of the more theoretical aspects of community analysis.

EMANUEL D. RUDOLPH